

WHAT IS CLAIMED IS:

1. A zoom lens system comprising, in order from  
an object; a first lens group having negative  
refractive power; a second lens group having positive  
5 refractive power; and

a third lens group having positive refractive  
power;

the first lens group consisting only of a  
negative lens element and a positive lens element,

10 the second lens group comprising at least two  
positive lens elements and at least one negative lens  
element, and

the third lens group consists of one lens  
element; and

15 wherein when the state of lens group positions varies  
from a wide-angle end state to a telephoto end state,  
a distance between the first lens group and the  
second lens group decreases, a distance between the  
second lens group and the third lens group increases,  
20 and the third lens group is fixed; and  
wherein the following conditional expression is  
satisfied:

$$2.5 < TL/(ft \times fw)^{1/2} < 4.5$$

25 where TL denotes the distance between the most  
object side lens surface of the zoom lens system and  
the image plane, fw denotes the focal length of the  
zoom lens system in a wide-angle end state, and ft

denotes the focal length of the zoom lens system in a telephoto end state.

2. The zoom lens system according to claim 1,  
5 wherein the first lens group includes at least one aspherical surface.

3. The zoom lens system according to claim 1,  
10 wherein the second lens group includes at least one aspherical surface.

4. The zoom lens system according to claim 1,  
wherein

the second lens group consists of, in order  
15 from the object, a positive lens element, a double convex positive lens element, and a negative lens element;

the double convex positive lens element is  
cemented with the negative lens element; and

20 the third lens group consists of one positive lens element.

5. The zoom lens system according to claim 4,  
wherein

25 the most object side lens surface of the second lens group has a convex shape facing to the object side,

the most image side lens surface of the second lens group has a concave shape facing to the image side, and

the following conditional expression is  
5 satisfied:

$$-4.0 < (G2r1+G2r2)/(G2r2-G2r1) < -1.0$$

where G2r1 denotes the radius of curvature of the most object side lens surface of the second lens group, and G2r2 denotes the radius of curvature of  
10 the most image side lens surface of the second lens group.

6. The zoom lens system according to claim 4, wherein

15 the following conditional expression is satisfied:

$$-0.5 < (G3r1+G3r2)/(G3r2-G3r1) < 0.5$$

where G3r1 denotes the radius of curvature of the most object side lens surface of the third lens group, and G3r2 denotes the radius of curvature of  
20 the most image side lens surface of the third lens group.

7. The zoom lens system according to claim 1,  
25 wherein the one lens element composing the third lens group has positive refractive power and has at least one aspherical surface.

8. The zoom lens system according to claim 1,  
wherein focusing from infinity to close object is  
conducted by moving the third lens group in the  
5 object direction.